

## Chapter 5

### Basic Principles

This chapter states general principles, some of which have been discussed in the earlier chapters. Because of their importance, operating principles bear repeating.

#### General Operating Principles

1. Always measure from the center of the tank.
2. Generally only those products stored in pressurized containers need ASD Calculations for both explosion and fire.
3. Any stationary container of 100 gallons or less containing common liquid industrial fuels is excluded from consideration by the Regulation and the Guidebook.
4. For those products stored in unpressurized tanks, generally only ASD calculations will be needed for fire.
5. When tanks are diked, the ASD is based upon the square footage of the diked area. Once you have determined the square footage, apply that figure to Worksheet #2.
6. For natural gases kept in a liquid state by temperature control (also known as cryogenic liquefied gases) consider only ASD for fire.
7. The Regulation and the Guidebook are not applicable to vehicular or waterway transport of materials.
8. The Regulation and the Guidebook apply to all HUD-Assisted projects near potentially hazardous operations which store or process chemicals or petrochemical products of an explosive or flammable nature. Waivers are not considered a viable alternative because the regulations allow great flexibility in mitigating alternatives that may be made.
9. Gasoline service stations generally are not covered by 24CFR Part 51C because the product storage containers are in many cases buried. However, any above ground stationary storage container of a hazardous substance, except stationary storage containers of 100 gallons or less of common liquid industrial fuel, would be covered.
10. The ASD for unprotected outdoor areas considers all outdoor spaces where people can congregate: playgrounds, outdoor recreation or planned open space, yards, balconies, etc.
11. The Regulation and Guidebook do not apply to the following:
  - buried containers
  - natural gas holders with floating tops
  - mobile tanks en route
  - release of toxic vapors
  - high pressure natural gas transmission and liquid petroleum pipelines
  - distribution piping associated with a container, storage tank or process vessel.
12. If the acceptable separation distance (ASD) is less than the actual distance between the hazard and project site, the actual separation distance is considered adequate. However, if the acceptable separation distance (ASD) is greater than the actual distance between the hazard and project site then the actual distance is inadequate and must be increased to the acceptable separation distance (ASD). In some instances other mitigating measures might be considered acceptable but they should be considered only on a case-by-case basis.
13. If the ASD cannot be achieved and mitigating measures are considered possible, mitigating measures must be determined on a case-by-case basis.
14. Fire barriers are generally not considered an economically feasible or practical approach to protecting buildings or people from the thermal radiation which emanates from a fireball. The height of a fireball is of such magnitude that the safer, more cost effective solution for protecting buildings and people is to determine the acceptable separation distance (ASD) and locate the project at that distance from the potential hazard.
15. There are two acceptable separation distance (ASD) standards for thermal radiation (fire); 10,000 BTU/ft<sup>2</sup> hr for building exposure and 450 BTU/ft<sup>2</sup> hr for human exposure.
16. The ASD standard for blast overpressure (explosion) is 0.5 psi.
17. The building standards for blast overpressure and thermal radiation are predicated on a wooden frame structure and level topography.
18. Blast barriers should be constructed as close to the hazard source as possible. While the most desirable blast barrier is a reinforced concrete wall, earthen berms are also considered acceptable. In any event, the barrier design, location, and construction must be site specific.
19. The Regulation and the Guidebook do not apply to employees of facilities which manage, store or process chemicals or petrochemicals of an explosive or flammable nature. The safety standards for facility employees are the authority of the Occupational Safety and Health Administration (OSHA).
20. Regulation 24 CFR 51C does not apply to mortgage insurance on 1 to 4 family units not included under the Developer Certification or local area Certification Processing Procedure. For the purpose of 24CFR 51C, these actions are not considered projects.



Acceptable Separation Distances from this hazardous facility were not considered when these townhouses were planned and constructed.